

## CLAIMS

### What is claimed is:

1. A 3D animation conversion method using scripts, comprising:
  - receiving a natural language script;
  - 5 formalizing the script;
  - comparing the script with a motion database comprising multiple motion clips and a motion index table which is used to obtained the motion clips corresponding to the script;
  - retrieving the corresponding motion clips; and
  - synthesizing a 3D animation according to the retrieved motion clips.
- 10 2. The method of claim 1, wherein the step of formalization comprising:
  - tagging the script into multiple words;
  - determing the part of speech of each tag;
  - determining the idiom of each tag according to the thesaurus; and
  - transforming the idiom into a formal language.
- 15 3. The method of claim 2, wherein the idiom is the most popular one among all synonyms of the tag.
4. The method of claim 2, wherein the formal language is in the XML format.
5. The method of claim 1, wherein the step to construct the motion database comprising:

receiving motion data;

retrieving the coordinate of each frame;

extracting the features of coordinates in each frame; and

5 constructing the index table of the motion data and the corresponding motion clips and motion annotations.

6. The method of claim 5, wherein the motion clip comprises multiple frames.

7. The method of claim 6, wherein the motion annotation is in the MPEG-7 DDL format.

8. The method of claim 6, wherein the motion clip is obtained by partitioning the motion data according to semantics.

10 9. The method of claim 5, wherein the features of a frame are the coordinates of the frame projected to a polar coordinate system.

10. The method of claim 1, wherein the step of synthesizing a 3D animation according to the retrieved motion clips comprising:

indexing the cells contains the starting clips and the ending clips respectively;

15 searching the possible paths from starting and ending cells; and

synthesizing all the clips along the selected path in the index table.

11. The method of claim 10, wherein the path searching is performed by a weighted greedy algorithm.